



205124



United States  
Environmental Protection  
Agency

Office of Public Affairs  
Region 5  
230 South Dearborn Street  
Chicago, Illinois 60604

Illinois Indiana  
Michigan Minnesota  
Ohio Wisconsin

# Lead Study Complete

## NL/Taracorp Superfund Site

Granite City, Illinois

September 1989

### This Fact Sheet Will Give You . . .

- The History of the NL/Taracorp site.
- The results of the NL/Taracorp pollution study.
- How the study was conducted.
- How to get more information.
- What the next step will be at the site.

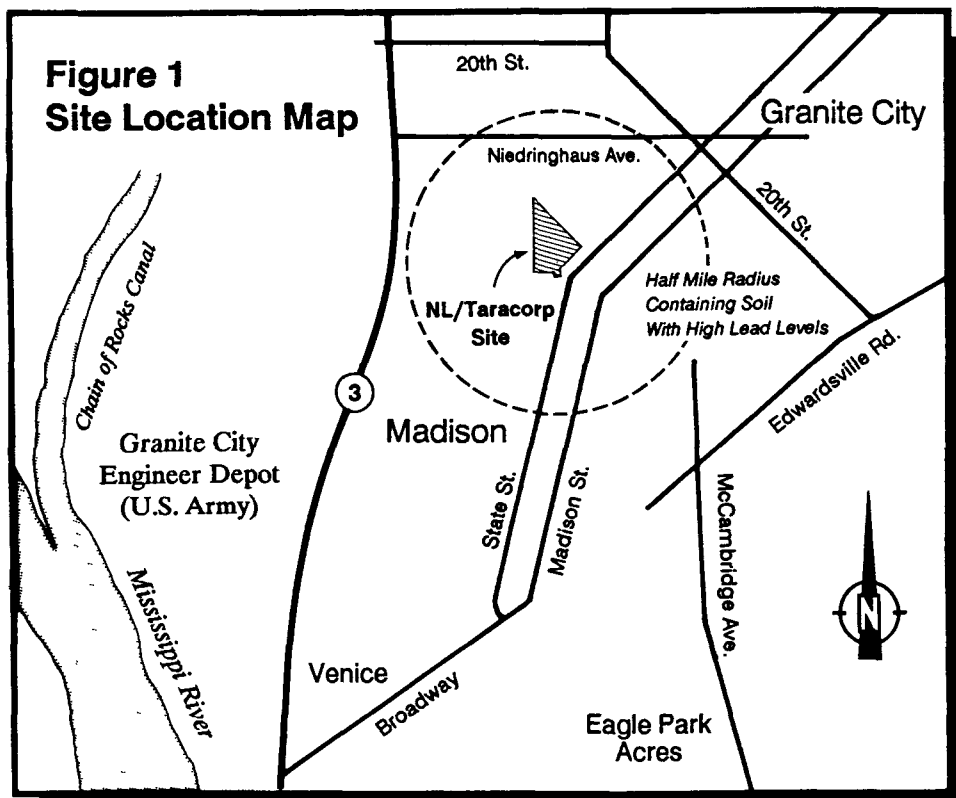


### Information Repository

Information repositories contain laws, work plans, community relations plans, and other documents relevant to the investigation and cleanup of Superfund sites. Anyone who would like additional information about the NL/Taracorp Superfund site is encouraged to consult the various documents available at the information repository. For more information contact:

**Robert Stack**  
Granite City Public Library  
2001 Delmare Avenue  
Granite City, IL 62040

**Figure 1**  
**Site Location Map**



The U.S. Environmental Protection Agency (U.S. EPA) recently finalized a report on an extensive study of contamination, called a **remedial investigation (RI)**, at the NL/Taracorp Superfund site in Granite City, Illinois. The report specifically addresses the type and amount of **lead and heavy metal** pollution found at the NL/Taracorp site and in the surrounding areas. NL Industries, former owner of the site, conducted the RI from January 1987 to September 1988 under the supervision of U.S. EPA and Illinois Environmental Protection Agency (IEPA). (Words appearing in **bold** are defined in the glossary).

A **risk assessment** was conducted in conjunction with the RI to determine if the site may be endangering human health and the environment. The report concluded that there was no unacceptable health risk from lead or other pollutants found on site or in the surrounding areas.

U.S. EPA and IEPA, however, disagree with this conclusion. A number of cleanup options for the site are being considered in an additional investigation called a **feasibility study (FS)**.

## History of Pollution

The Taracorp site is located at 16th Street and Cleveland Boulevard in Granite City, and occupies 15.8 acres, including a 3.5 acre **slag** storage area. Operations at the site have included metal refining, fabricating, and related activities since the turn of the century. The facility began operation as Hoyt Metal in 1903. It was later sold, and became United Lead. NL Industries purchased United Lead in 1928 and operated the facility until 1979 when it was purchased by Taracorp Inc. Taracorp Inc. currently operates a metal fabrication facility at the site.

Lead pollution in the area is believed to be partially a result of lead **smelting** conducted at the site from approximately 1905 until 1983. The smelter was used for purifying and reprocessing lead-containing scrap, used batteries and cable sheathing. Solid wastes generated from this process included blast furnace slag, battery cases, and dust from the smelter's smoke stack. These wastes were stored on-site in waste piles. The largest pile (Taracorp pile) contains approximately 250,000 tons of lead-containing solid wastes.

Another storage area of waste piles is located at the St. Louis Lead Recyclers (SLLR) which is directly south of and adjacent to the Taracorp Inc. property. The wastes at SLLR were a result of recycling the original waste piles. The largest of the SLLR piles (SLLR pile) contains 6000 tons of lead contaminated rubber. A third location of contamination attributed to the site is the remote fill areas of Venice and Eagle Park Acres where lead-containing battery case pieces were allegedly used for fill and alley paving material (Figure 2 and 3).

The IEPA began monitoring air quality for lead on a state-wide basis in mid-1978. Eighty-five percent of the air samples from three Granite City air quality monitors which were analyzed between 1978 and 1981 had lead levels exceeding federal standards. In July 1981, the State of Illinois was required by U.S. EPA to develop a plan to control and maintain federal air quality standards for lead in Granite City. An intensive investigation of the Taracorp Inc. facility by IEPA in mid-1982 found that Taracorp Inc. operations were the primary source of lead pollution detected in area air and soil. Following the

1982 investigation the State of Illinois denied an application for renewal of Taracorp's permit to operate the smelter. Taracorp Inc. filed for bankruptcy in December 1982, shortly after the site was proposed for the **National Priorities List (NPL)**.

NL Industries, former owners of the facility, entered into a legal agreement with U.S. EPA and IEPA in March 1985. The agreement, called a **consent order**, requires the company to conduct an RI and FS. The RI included the Taracorp Inc. property, the waste piles at SLLR, the remote fill areas of Venice and Eagle Park Acres, and the surrounding air, water and soil.

## Pollution Investigation

The purpose of the remedial investigation was to determine the nature and extent of contamination at the NL/Taracorp Superfund site. The investigation also proposed a set of possible cleanup options to be examined during the feasibility study.

Field activities included sampling air, on-site and off-site surface soils, waste materials from the Taracorp pile and SLLR pile, surface water, and **ground water**. Two test pits were excavated in the Taracorp pile to provide information on the inner composition of the pile itself. All the samples collected were analyzed for the presence of heavy metals and other chemicals. The results of the sample analyses were used to help determine potential site cleanup options.

## Air

Air quality at and around the site appears to be within the National Ambient Air Quality Standards (NAAQS). In 1978, five air monitors were installed north and east of the site. The monitors were part of a plan by the IEPA to study the effect of the Taracorp Inc. site on area air quality. The data obtained from these monitors from 1978 to 1986 was used as part of the RI to determine how the site may be contributing to air-born lead pollution.

Since smelting operations were discontinued at Taracorp Inc., in 1983, and at SLLR in 1984, lead levels have been

well below the NAAQS. The remedial investigation also concluded that any lead emitted into the air from the waste piles or the Taracorp Inc. plant does not violate air quality standards.

## Surface Water/Sediments

The Chain of Rocks Canal, which is located more than one mile west of the site, is the nearest surface water body. There appears to be drainage from the Taracorp Inc. property directly to this canal.

Storm water drains in two directions on-site, either from the waste piles, or through the manufacturing area. Storm water appears to runoff the sides of the Taracorp and SLLR waste piles and



picks up lead particles on its way. Lead concentrations in the runoff samples from these piles ranged from 3 to 41 part per million (ppm). After the storm water combines with the lead, it tends to collect into puddles on the site. The lead-contaminated water from these puddles eventually evaporates into the air, or migrates into the ground where it has the potential to contaminate area ground water.

---

## What is a part per million (ppm)?

*In every day terms, one part per million would be equal to one second in 11 days, or one facial tissue in a stack of facial tissues higher than the Empire State building. Numerically, a part per million looks like 0.000001.*

---

Sediment samples were collected in the same locations as the storm-water runoff samples. Lead concentrations in the sediment ranged from 13,640 to 148,600 ppm. The investigation indicated that the movement of surface water is only limited to the Taracorp Inc., SLLR, and Tri-Cities Trucking (TCT) property.

On-site storm water also drains across the manufacturing area. This entire area is paved and therefore the storm water flows directly into the municipal sewer system. This water was not analyzed for pollutants as part of the study.

## Waste Piles

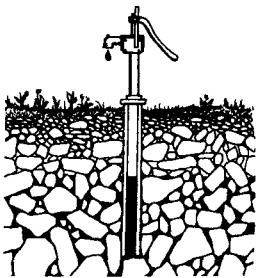
Two test pits excavated during the Taracorp investigation of the waste pile revealed a mixture of materials ranging in size from



dust, to slag particles weighing in excess of 1,000 pounds. Samples were obtained from blast-furnace slag, materials from the upper portion of the Taracorp pile, material from between 25 to 35 drums containing wastes from metal processing and dust from the smelter's air filter, and samples of material from the SLLR pile. Each sample was analyzed for the presence of several heavy metals. The blast-furnace slag and SLLR pile analyses showed both to be hazardous because of high lead concentrations. Materials from the upper portion of the main Taracorp pile and the drummed material were found to be hazardous because of high concentrations of lead and cadmium. A separate test revealed that lead and cadmium found in the main Taracorp pile could leach out of the pile and into the surrounding environment. The lead and cadmium concentrations are high enough that if they do move out of the waste pile they could be hazardous to human health and the environment.

## Ground Water

A total of twelve ground-water monitoring wells were installed on and around the site as part of the investigation. The wells were installed to determine if contamination present in area ground water could be attributed to contaminants from the Taracorp Inc. property. The wells were also installed to determine the direction of local ground-water flow and determine if pollution is moving within ground water.



The RI determined that the local ground water flows southwest towards the Mississippi River. The ground water was also found unsuitable for drinking because test wells indicated the water was

contaminated with **dissolved solids, sulfates, and manganese**. There are approximately 36 private ground-water wells located within two miles of the site, although the investigation did not determine whether they are currently in use. Granite City's municipal drinking water comes from the Mississippi River and does not appear to be affected by contaminated ground water.

The results of the investigation showed that two on-site wells have above normal levels of sulfates, dissolved solids, and the following heavy metals: arsenic, cadmium, manganese, nickel, and zinc. The heavy metals, however, do not appear to be moving off site. Lead concentrations from on and off-site wells were found to be generally less than 0.02 ppm. The investigation did not evaluate deep ground-water quality, and as a result did not determine if contamination was migrating off-site at a lower depth.

## STANDARDS AND GUIDELINES FOR LEAD

### Soil

The ASTDR has set a guideline for Granite City of **500 to 1000 ppm**. The U.S. EPA does not have a standard for lead in soil so it has adopted this guideline for the investigation.

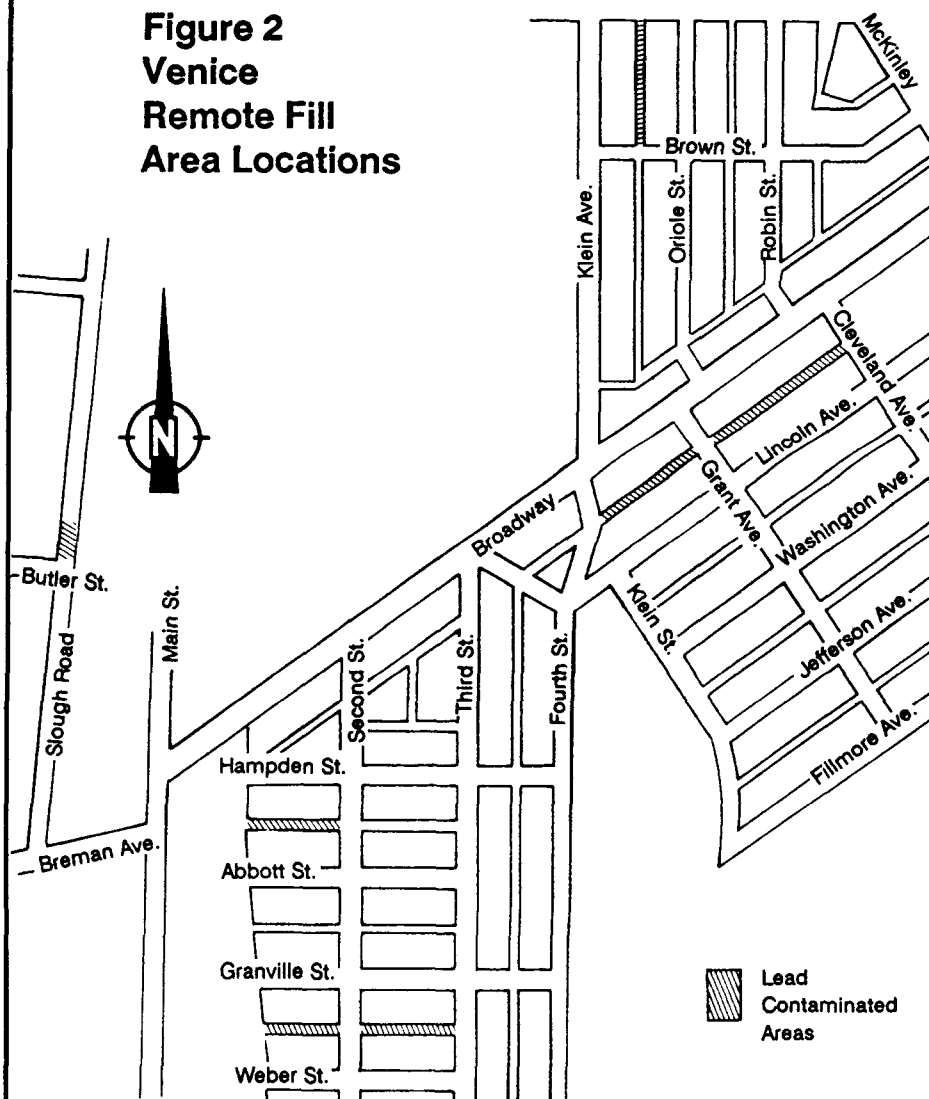
### Air

The National Ambient Air Quality Standard set by U.S. EPA is **0.156 ppm**.

### Drinking Water

The proposed U.S. EPA standard for lead in drinking water is **5000 ppm**.

**Figure 2**  
**Venice**  
**Remote Fill**  
**Area Locations**



## Soil

Fifty two on-site and off-site samples were obtained during the soil investigation. These samples were analyzed twice for lead and once for heavy metals.

The off-site samples were

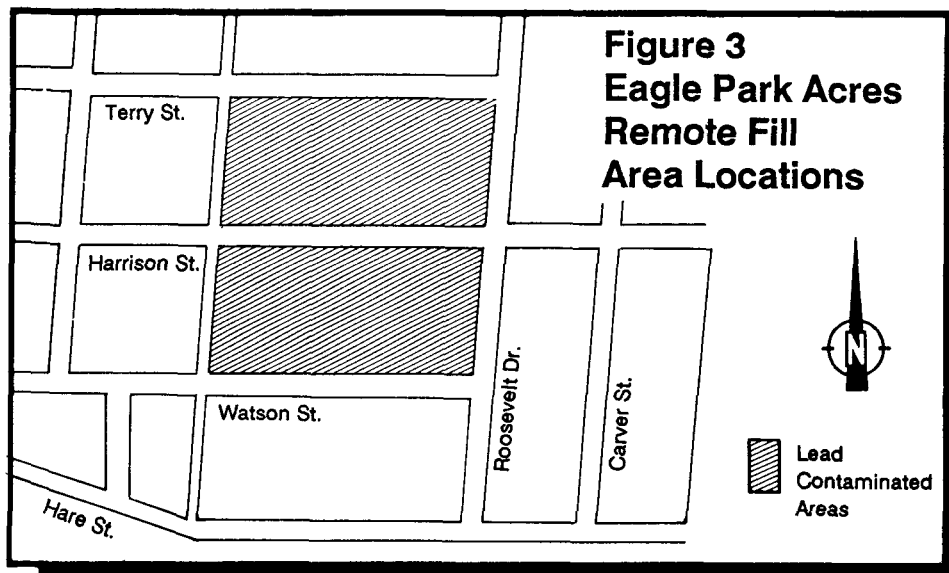
located within one-half mile of the site and in the alleyways of the remote fill areas. Soil samples were taken at various depths. The average lead concentration in off-site soil samples obtained from zero to three inches in depth was 1,374 ppm. From three to six inches in depth the average lead concentration was 1,058 ppm. One of the soil samples was further analyzed to determine if lead could possibly move through the soil and into the ground water from the waste piles. The results, based on that sample, indicated that lead was not likely to move into the surrounding environment.

A second test was conducted for lead in off-site soil. In soils from zero to three inches deep, the concentrations averaged 3,378 ppm. A health analysis for other heavy metals indicated that lead was the primary contaminant of concern at the site.

Two on-site samples were collected and analyzed for the presence of lead. The average lead concentration in soil samples obtained from zero to three inches in depth was 1,300 ppm and from three to six inches deep was 41,000 ppm.

Soil samples were collected from seven alley locations in nearby Venice. The lead concentration results from these samples ranged from 200 to 128,000 ppm. Additional sampling in Venice included analysis of pieces of paving materials and one soil sample. The lead concentration for the paving materials ranged from 125 to 7,010 ppm, and lead concentration for the soil sample was 766 ppm.

In Eagle Park Acres, eight soil samples were collected at four locations. The average lead concentration for the initial soil samples obtained from zero to three inches in depth was 1130 ppm, and from three to six inches deep was 1358 ppm. The amount of lead found in the soil at Eagle Park Acres during the second analysis of the samples collected, ranged from 19 to 2920 ppm.



**Figure 3**  
**Eagle Park Acres**  
**Remote Fill**  
**Area Locations**

## Risk Assessment

The final phase of the remedial investigation was an assessment of potential risks to human health and the environment which would be posed if no action were taken to clean up the site. Earlier phases of the study determined which pollutants are present, the levels at which they are present, and where they are located. Using this information, the risk assessment examined whether existing or future contact with the pollutants poses unacceptable health or environmental risks.

There are four potential pathways in which people can come in contact with the pollutants at the NL/Taracorp site: soil, air, ground water, and surface-water runoff. Surface water is not a threat because there is no surface water in close proximity to the site. Surface-water runoff appears only contained within the Taracorp Inc., SLLR, and TCT properties. As a result, the report does not consider runoff a risk to the general public or environment. Based on the level of contamination in on-site wells and the absence of information on ground-water and drinking-water wells usage, contact with ground water was also not considered a risk, according to the report.

The RI determined that the two ways that people were the most likely to come into contact with lead is by ingesting lead-contaminated soil from unwashed hands or food, and by breathing in dust that contains lead. Once these pathways were identified, the Risk Assessment report studied what

effect, if any, the lead would have on the public health. The report quotes the **Agency for Toxic Substances and Disease Registry (ATSDR)**, stating that "soil-lead concentrations in Granite City could cause an increase in blood-lead concentrations," yet concludes that the site does not represent an unacceptable risk to public health. This conclusion was partially based on a Illinois Department of Public Health (IDPH) Blood Lead Survey conducted in 1982. The survey indicated that there was no unacceptable health risk posed by the site for the 97 area residents who volunteered to be tested for blood lead.

The U.S. EPA and IEPA disagree with the findings of the RI risk assessment and its conclusion of no unacceptable risk. They determined that the IDPH Blood Survey and the two other analytical methods used were flawed or inappropriately applied. Despite this disagreement U.S. EPA and IEPA have with the risk assessment, a FS is currently being conducted by NL Industries. The FS, which will be completed later this year, will study possible clean-up options.

Recommendations on the possible clean up of the site will be presented to U.S. EPA in the FS report.

## GLOSSARY

**Agency for Toxic Substances and Disease Registry (ATSDR)** - A branch of the U.S. Department of Health and Human Services based in Atlanta, Georgia. It primarily conducts health assessments of Superfund sites in conjunction with state agencies.

**Consent Order** - A legal agreement between the U.S. EPA, the potentially responsible parties for a site and sometimes the State. Under a Consent Order, PRPs agree to perform investigations or other remedial activities at a particular hazardous waste site.

**Ground Water** - Underground water that fills pores in sand and gravel or openings in rock to the point of saturation. When ground water accumulates in significant quantities, it may be used as a source of drinking water.

**Heavy Metals** - A group of metals including lead, cadmium, and manganese. These can be highly toxic at relatively low concentrations.

**Monitoring Wells** - Special wells installed at selected locations on or near a hazardous waste site to sample ground water at selected depths and to evaluate the direction of ground water flow.



**Cadmium** - Found in some ores. Cadmium is toxic, and can be fatal if contaminated dust or fumes are inhaled.

**Dissolved Solid** - This is a generic term. It can be any of a number of chemicals or minerals found dissolved in water. The test to detect dissolved solids is a general test, is used to determine if water is polluted. If dissolved solids are found in water, more tests are conducted to identify which chemicals are present.

## CHEMICALS OF CONCERN

**National Priorities List (NPL)** - U.S. EPA's list of the top priority hazardous waste sites in the country that are eligible for federal cleanup money under Superfund.

**Remedial Investigation (RI) and Feasibility Study (FS)** - Two distinct but related studies. The remedial investigation examines the nature and the extent of contamination problems at the site. The feasibility study evaluates different methods to clean up or otherwise resolve the contamination found during the remedial investigation.

**Risk Assessment** - A study based on the results of the RI, to determine the extent to which chemical contaminants found at the site pose a risk to public health and the environment.

**Slag** - Waste by-products which result from the smelting of metallic ore or objects containing metal.

**Smelting** - A process of either melting or fusing metal bearing ores in order to recover or purify particular metals.

**Lead** - Found in some ores. It can be toxic by ingestion or by inhalation of contaminated dust or fumes. Lead accumulates in the body, and can build up to dangerous levels over long periods of time. It can cause brain, bone and nerve damage.

**Manganese** - Usually found in iron ore. Inhalation of dust or fumes over a period of time can cause damage to the central nervous system.

**Sulfates** - Sulfate itself is not dangerous, but combined with other chemicals it can be dangerous or toxic. The danger depends on which chemical it combines with.

## The Next Step

Now that the pollution study is complete, NL Industries is conducting a study of ways to clean up the site. Under U.S. EPA and IEPA supervision, NL Industries will screen and evaluate cleanup alternatives. The evaluation of each alternative will consider:

- Ability to protect human health and the environment;
- Compliance with laws and regulations;
- Cost effectiveness;
- Acceptance of the alternative by the state and the community;

- Effectiveness (short and long-term); and
- Ability to be implemented

When this study is complete, U.S. EPA will select a preferred cleanup alternative for the site. U.S. EPA will distribute information on the study and the proposed cleanup alternatives to the community. Members of the community will have an opportunity to review and comment on all the alternatives evaluated. U.S. EPA will take all public comments into consideration before it makes a final decision on the site cleanup.

# For More Information

## Government Contacts

**MaryAnn Croce**  
Community Relations  
Coordinator  
Office of Public Affairs  
(312) 886-1728

**Brad Bradley**  
Remedial Project  
Manager  
Office of Superfund  
(312) 886-4742

**U.S. EPA, Region 5**  
230 South Dearborn Street  
Chicago, Illinois 60604

**TOLL-FREE:**  
**1-800-621-8431**  
9:00 a.m. - 4:30 p.m.  
Central Time

**Ken Miller**  
Project Manager  
Illinois Environmental  
Protection Agency  
(217) 782-6760



## MAILING LIST

If you have not received information in the mail about the NL/Taracorp Superfund site and wish to be placed on the mailing list, please complete this form, detach, and mail to:

**MaryAnn Croce (5PA-14)**  
U.S. Environmental Protection Agency  
Region 5  
Office of Public Affairs  
230 South Dearborn Street  
Chicago, IL 60604

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_



**U. S. Environmental Protection Agency**  
**Region 5**  
**Office of Public Affairs (5PA-14)**  
**230 South Dearborn Street**  
**Chicago, IL 60604**



*Printed on Recycled Paper*